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**From:** Allenbach, Becky [Allenbach.Becky@epa.gov]  
**Sent:** 6/20/2017 12:30:37 PM  
**To:** Orme-Zavaleta, Jennifer [Orme-Zavaleta.Jennifer@epa.gov]  
**CC:** Buckley, Timothy [Buckley.Timothy@epa.gov]; Kavlock, Robert [Kavlock.Robert@epa.gov]; Lapierre, Kenneth [lapierre.kenneth@epa.gov]; Mundrick, Doug [Mundrick.Doug@epa.gov]; Hall, Renea [Hall.Renea@epa.gov]; Strynar, Mark [strynar.mark@epa.gov]  
**Subject:** RE: Follow-up Some GenX info

Mark,

This is the lab contact for North Carolina sampling. I understand that they have worked with Dr Knappe to understand test methods and that Test America will be doing the company paid analyses.

Becky

Chris Johnson, Organic Chemistry Branch Chief

Land line - 919-733-3908 ext. 224

Mobile: Ex. 6 Personal Privacy (PP)

[Chris.Johnson@ncdenr.gov](mailto:Chris.Johnson@ncdenr.gov)

*Becky B. Allenbach, Acting Deputy Director  
Water Protection Division  
EPA Region 4 - Atlanta  
Office: 404-562-9687  
Cell: Ex. 6 Personal Privacy (PP)*

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**From:** Orme-Zavaleta, Jennifer  
**Sent:** Tuesday, June 20, 2017 6:01 AM  
**To:** Allenbach, Becky <Allenbach.Becky@epa.gov>  
**Cc:** Buckley, Timothy <Buckley.Timothy@epa.gov>; Kavlock, Robert <Kavlock.Robert@epa.gov>; Lapierre, Kenneth <Lapierre.Kenneth@epa.gov>  
**Subject:** Re: Follow-up Some GenX info

Mark Strynar

Jennifer Orme-Zavaleta, PhD  
Director, National Exposure Research Laboratory  
USEPA  
RTP, NC

Ex. 6 Personal Privacy (PP)

On Jun 19, 2017, at 12:27 PM, Allenbach, Becky <[Allenbach.Becky@epa.gov](mailto:Allenbach.Becky@epa.gov)> wrote:

I recently emailed the state regarding a QAPP for this effort. Who should NC coordinate with?

Becky B. Allenbach, Acting Deputy Director  
Water Protection Division

EPA Region 4

On Jun 19, 2017, at 12:23 PM, Orme-Zavaleta, Jennifer <[Orme-Zavaleta.Jennifer@epa.gov](mailto:Orme-Zavaleta.Jennifer@epa.gov)> wrote:

Becky, we will be able to provide analytical support. I want to emphasize that we have research methods. We are looking to include GenX in the larger lab validation efforts. It will be important that the labs work together in these analyses and make sure we have consistent SOPs

Please work with Mark Stynar  
[stynar.mark@epa.gov](mailto:stynar.mark@epa.gov)  
919-541-3706

Jennifer Orme-Zavaleta, PhD  
Director, National Exposure Research Laboratory  
USEPA Office of Research and Development  
109 TW Alexander Dr MC 305-01  
RTP, NC 27711

919-541-2106

Ex. 6 Personal Privacy (PP) (cell)

[orme-zavaleta.jennifer@epa.gov](mailto:orme-zavaleta.jennifer@epa.gov)

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**From:** Allenbach, Becky  
**Sent:** Friday, June 16, 2017 4:33 PM  
**To:** Orme-Zavaleta, Jennifer <[Orme-Zavaleta.Jennifer@epa.gov](mailto:Orme-Zavaleta.Jennifer@epa.gov)>  
**Cc:** Buckley, Timothy <[Buckley.Timothy@epa.gov](mailto:Buckley.Timothy@epa.gov)>; Kavlock, Robert <[Kavlock.Robert@epa.gov](mailto:Kavlock.Robert@epa.gov)>  
**Subject:** Re: Follow-up Some GenX info

Yes thanks!

Becky B. Allenbach, Acting Deputy Director  
Water Protection Division  
EPA Region 4

On Jun 16, 2017, at 4:31 PM, Orme-Zavaleta, Jennifer <[Orme-Zavaleta.Jennifer@epa.gov](mailto:Orme-Zavaleta.Jennifer@epa.gov)> wrote:

Makes sense to me

Want to be able to compare results s and not have a fruit salad at the end!

Ok to confirm monday?

Jennifer Orme-Zavaleta, PhD  
Director, National Exposure Research Laboratory  
USEPA  
RTP, NC

Ex. 6 Personal Privacy (PP)

On Jun 16, 2017, at 4:12 PM, Allenbach, Becky <[Allebench.Becky@epa.gov](mailto:Allebench.Becky@epa.gov)> wrote:

What do you all think is best? For Mark to coordinate directly with the lab when we learn who that is?

Becky B. Allenbach, Acting Deputy Director  
Water Protection Division  
EPA Region 4 - Atlanta  
Office: 404-562-9687  
Cell Ex. 6 Personal Privacy (PP)

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**From:** Orme-Zavaleta, Jennifer  
**Sent:** Friday, June 16, 2017 4:10 PM  
**To:** Allenbach, Becky <Allenbach.Becky@epa.gov>  
**Cc:** Buckley, Timothy <Buckley.Timothy@epa.gov>; Kavlock, Robert <Kavlock.Robert@epa.gov>  
**Subject:** Re: Follow-up Some GenX info

I am waiting for confirmation from Mark but believe we will be able to help

How will we coordinate sops for analyses?

Jennifer Orme-Zavaleta, PhD  
Director, National Exposure Research Laboratory  
USEPA  
RTP, NC  
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On Jun 16, 2017, at 2:07 PM, Allenbach, Becky <Allenbach.Becky@epa.gov> wrote:

Thank you Jennifer.

We had a call with North Carolina yesterday where they let us know that they plan to take 12 samples per week for a 3 week period beginning next week of both surface water and finished drinking water. Chemours has offered to pay for the analysis using a commercial lab in Colorado, but they state thinks it best to split samples and conduct separate analysis. I agree.

So, there will conservatively be less than 50 samples we are asking you to analyze. Either we will ask the company for the test method or NC will to insure that they are being analyzed in the same manner for comparison. Does this work? Should we have them contact Mark about the sampling precautions that need to take place with the PFASs?

Becky

Becky B. Allenbach, Acting Deputy Director  
Water Protection Division  
EPA Region 4 - Atlanta  
Office: 404-562-9687  
Cell Ex. 6 Personal Privacy (PP)

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**From:** Orme-Zavaleta, Jennifer  
**Sent:** Thursday, June 15, 2017 4:01 PM  
**To:** Allenbach, Becky <Allenbach.Becky@epa.gov>; Buckley, Timothy <Buckley.Timothy@epa.gov>; Medina-Vera, Myriam <Medina-Vera.Myriam@epa.gov>; Biales, Adam <Biales.Adam@epa.gov>; Guiseppi-Elie, Annette <Guiseppi-Elie.Annette@epa.gov>; Walker, Mary <walker.mary@epa.gov>; Kemker, Carol <Kemker.Carol@epa.gov>; Strynar, Mark <Strynar.Mark@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>; Sinks, Tom <Sinks.Tom@epa.gov>; Flowers, Lynn <Flowers.Lynn@epa.gov>; Hall, Renea <Hall.Renea@epa.gov>; Campbell-Dunbar, Shawneille <Campbell-Dunbar.Shawneille@epa.gov>; Elliott, Richard <Elliott.Richard@epa.gov>; Maguire, Megan <Maguire.Megan@epa.gov>;

Mitchell, Ken <Mitchell.Ken@epa.gov>; Mundrick, Doug <Mundrick.Doug@epa.gov>; Gettle, Jeaneanne <Gettle.Jeaneanne@epa.gov>; Simpson, Timothy <Simpson.Timothy@epa.gov>; Sivertsen, Scott <Sivertsen.Scott@epa.gov>

**Cc:** Hubbard, Carolyn <Hubbard.Carolyn@epa.gov>; Kavlock, Robert <Kavlock.Robert@epa.gov>; Flowers, Lynn <Flowers.Lynn@epa.gov>; Impellitteri, Christopher <Impellitteri.Christopher@epa.gov>

**Subject:** FW: Some GenX info

**Importance:** High

Hi all, thanks again for making time to talk today.

As a follow up pls see the attached and the info below. Let us know what questions you have or additional information you need.

Also, let us know if the SESD staff want to meet with Mark in Athens June 26-27

Thanks!

jennifer

Jennifer Orme-Zavaleta, PhD  
Director, National Exposure Research Laboratory  
USEPA Office of Research and Development  
109 TW Alexander Dr MC 305-01  
RTP, NC 27711

Ex. 6 Personal Privacy (PP)

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[orme-zavaleta.jennifer@epa.gov](mailto:orme-zavaleta.jennifer@epa.gov)

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**From:** Strynar, Mark

**Sent:** Thursday, June 15, 2017 3:33 PM

**To:** Orme-Zavaleta, Jennifer <Orme-Zavaleta.Jennifer@epa.gov>; Guiseppi-Elie, Annette <Guiseppi-Elie.Annette@epa.gov>

**Cc:** Medina-Vera, Myriam <Medina-Vera.Myriam@epa.gov>; Buckley, Timothy <Buckley.Timothy@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>

**Subject:** Some GenX info

Jennifer please pass on to those on the call. You can find info on each of these compounds on the US EPA Comptox Chemistry Dashboard.

All,

1) Per the attached non-CBI GenX brochure (attached) from DuPont the compound being called GenX is the processing aid with the structural formula  $\text{CF}_3\text{CF}_2\text{CF}_2\text{OCF}(\text{CF}_3)\text{COOH}\cdot\text{NH}_3$

This is the ammonium salt of the processing aid. This is much like PFOA can exist as the free anion (PFO-) or as the ammonium salt (APFO). As these will both exist as the anionic form in water, they cannot be measured separately. Many other PFAS exist in salt forms as well for usage but as anions when analyzed for (PFOS-K, PFOS-NH<sub>4</sub>, PFOA-Na...)

The CAS for the GenX ammonium salt is CAS 62037-80-3

<https://comptox.epa.gov/dashboard/dsstoxdb/results?utf8=%E2%9C%93&search=62037-80-3>

The free acid for has the CAS 13252-13-6

Called undecafluoro-2-methyl-3-oxahexanoic acid

<https://comptox.epa.gov/dashboard/dsstoxdb/results?utf8=%E2%9C%93&search=13252-13-6>

Also per the brochure the “DuPont resin manufacturing process includes the thermal transformation of the GenX processing aid into a hydrophobic water-insoluble hydride (CAS Number 3330-15-2)”. This is essentially the decarboxylation of the GenX acid. As this analyte is no longer an acid we do not see it. It is also more likely a GC amenable compound.

<https://comptox.epa.gov/dashboard/dsstoxdb/results?utf8=%E2%9C%93&search=3330-15-2>

2) Per the EPA sanitized PMN consent order it appears the 2 compounds are the free acid and ammonium salt form of the GenX compound (see attached)

3) The data from the Sun et al., 2016 paper is in the Science Hub

([https://sciencehub.epa.gov/sciencehub/research\\_efforts/408/datasets/395](https://sciencehub.epa.gov/sciencehub/research_efforts/408/datasets/395))

4) Find attached the Sun et al., 2016 paper and the SI.

Please let me know if you have any further questions.

Mark

Dr. Mark J. Strynar

Physical Scientist

US EPA

National Exposure Research Laboratory

919-541-3706

[Strynar.mark@epa.gov](mailto:Strynar.mark@epa.gov)